**MINI PROJECT**

**(2019-2020)**

**GAMING CONTROL USING GESTURES**

INSTITUTE OF ENGINEERING AND APPLICATIONS



**Submitted To: Submitted By:**

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**ABSTRACT**

Hand gesture is an innovative technique of interaction between human and computer. As compared to existing techniques, hand gesture technique has the advantage of being easy to use. By using this technique the traditional way of using mouse and keyboard will be change because one can then interact with the computer with hand gestures. In this technique, ultrasonic sensor is used to classify the hand movement in real-time. Ultrasonic sensor measures the distance of hand by using sound waves. The main idea of our approach is to speed up the interaction with computer, using general purpose hardware like personal computer, Node MCU and low cost sensor like ultrasonic sensor. In this way any user can easily interact with the computer using hand gestures.

KEYWORDS — Hand Gesture, ultrasonic sensor, Node MCU, Python

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**INTRODUCTION**

Today’s world is a high technological world; imagining life without computer is impossible. Now computer is an essential part of human’s day-to-day life. Vision and gesture are the important approach for communication between human beings just in the same way as keyboard and mouse play a role for interacting with computer. Numbers of effective techniques are available for interaction with computer and one of them is hand gesture technique.

In that technique hand gesture is used as an input which replaces functionality of mouse and keyboard shortcut keys. Hand gesture is an attractive and faster technique. For determining user hand distance ultrasonic sensors are used. By using hand gesture user can communicate with computer easily and there is no need of any physical connection between user and system.

**PROPOSED WORK**

This paper introduces a technique based on determining distance by the sensor and accordingly a particular function is performed. Some recognition method of the gestures are proposed and then actions are recognized using sensor .We set up few mainstream methods based on the action recognition by the sensors. The sensor device is attached on computer at head of the screen, for quick operation. In this field much research work has been done but that work is related to hand recognition, real time finger recognition and recognition of alphabet characters. Real time human computer interaction using hand gesture, are also used for many functionalities such as video control, music player, gaming , controlling the functions of PDF reader etc. All these interactions have real time gesture recognition techniques. A gesture controller resolution always requires a physical device which follows and recognizes the body language or movements, so that the computer can clarify them. By using ultrasonic sensor, the distance of hand can be found which acts as an input. According to the distance of hand, particular function is performed.

**COMPONENTS REQUIRED:-**

**Hardware required:**

* NodeMCU
* accelerometer
* infrared sensor
* i5 processor based computer
* 4GB Ram
* 5 GB Hard Disc Space

**Software required:**

* XAPP control panel
* Notepad++

**Technology Used:**

* HTML
* CSS
* BOOTSTRAP
* JAVASCRIPT
* ARDUINO
* PHP
* PYTHON
* IOT

**WORKING**

In this project we have designed a game which can be controlled using our hand gestures. We have interfaced our PC with a NodeMCU and an ultrasonic sensor.

As we change the distance between our hand and the ultrasonic sensor the mouse position changes accordingly.

To do this we have interfaced an ultrasonic sensor with a NodeMCU. Our NodeMCU is sending data on a particular port on a particular IP, then we are opening that port on our system using a python program and socket library. Then we are reading data through this particular port. Next we have made use of the Pyautogui library to control the mouse pointer.

As a result of this, as we move our hand away from the sensor then the mouse pointer moves down and vice versa. Thus we have created a wireless sensor based mouse which can be controlled through hand gestures. In this gaming application we will make website also in which html css bootstrap are used on fronted of the website and in backend we use pHp the output will be shown on website and data will store on website.

**BENEFITS OF THE PROJECTED SYSTEM**

1. For this system there is no need of sound to be created so no interruption of background noise.

2 A number of functions of computer can be operated by using ultrasonic sensor.

3. This technique may be very useful for those who does not know functionally of computer. This technique decreases the learning time required.

4. Using this technique it is easy to interact with the computer and there is no language barrier.

5. By using this system we can control our laptop from a small distance and it can help to control laptop in conference room presentation.

**OBSERVATION**

The sensor which is used in this system consumes very less power. The module is developed in low cost. In this system ultrasonic sensor is used to detect hand gesture or distance of hand and according to condition operation is perform on computer. The solution shown in article is implementable and very useful for the user.

**FUTURE SCOPE**

Hand gesture technique is not only limited to gaming, using basic function of computer it can be useful for medical applications. Hand gesture technique can work as input method between medical instruments and human body as proposed. It can be used for operating each and every functions of computer.

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**Faculty:**

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**CONCLUSION**

This article presents one of the solution among various others, for operating a computer using hand gestures. It is one of the easiest way of interaction between human and computer .It is a cost effective model which is only based on Node MCU and ultrasonic sensor. The python IDE allows a seamless integration with Node MCU in order to achieve different processing and controlling methods for creating new gesture control solutions.